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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,507	09/25/2003	Satoru Yamaguchi	461-148	4573

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EXAMINER

RAO, G NAGESH

ART UNIT	PAPER NUMBER
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1722

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/669,507

Applicant(s)

YAMAGUCHI ET AL.

Examiner

G. Nagesh Rao

Art Unit

1722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-12, 15 and 16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-6, 15 and 16 is/are allowed.
- 6) ☒ Claim(s) 7, 8 and 10-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Allowable Subject Matter

1) The following is a statement of reasons for the indication of allowable subject matter: See Attorney's remarks for why claims 1-6 and 15-16 are deemed allowable over the prior art put forth.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
- 2) Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US Patent No. 4,227,870) in view of Maillefer (US Patent No. 4,171,196).

Kim 870 pertains to a screw extruder, that is capable of being used in an extrusion molding machine capable of processing ceramic material, with a double helical thread flight where there is a primary flight pattern and a secondary flight pattern facing forward which reads on the ridge spirally formed in an axial direction, whereby a groove which reads on as a type of gap is the result of the formation between the two helical flight thread patterns intersecting with one another on the screw extruder (See Figure 4, Col 1 Lines 63-68, and Col 2 Lines 1-62). Whereby these helical flight patterns on the screw extruder are capable of dispersing and pressing material forward, since those are two commonly known traits and functions applied through the use of a screw extruder and furthermore comprising a shaping die (Figure 1 Element 18) capable of being used to produce a ceramic molded product.

However Kim 870 fails to explicitly teach a differently shaped portion is a through-hole which opens to said second lead surface of said second lead on the one hand and opens to the reverse side of said second lead through said second lead on the other hand.

In an apparatus pertaining to screw extrusion, Maillefer 196 teaches an improved screw-type extruder to increase the output in an orderly and regular flow

manner wherein it is shown to have slots (15) which read on as openings embedded in the thread pattern of the screw extruder (See Figures 1 and 3).

At the time of the invention it would have been obvious to one with ordinary skill in the art to modify the hypothetical device taught by Kim 870 with the teachings of Maillefer 196, in order to take advantage of the threaded pattern taught to enable a more optimal and processing condition for the extrusion molding as well allow for flow of the material along the extruder without causing excessive heating or blockage (Col 4 Lines 52-68 and Col 5 Lines 1-34).

3) Claims 7-8 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US Patent No. 4,227,870) in view of Rauwendaal (US Patent No. 6,136,246) in further view of Street (US Patent No. 3,941,535).

From the aforementioned Kim 870 teaches a screw extruder that has a double helical flight pattern that enables the screw to aid in dispersing and pressing the extruded material forward.

However Kim 870 fails to explicitly teach the specified degree displacement of the helical flight thread patterns around the screw extruder as claimed by the applicant.

In a screw extruder pertaining to enhanced dispersive mixing elements, Rauwendaal 246 teaches various embodiments of the screw extruder having

various indentations, shapes, protrusions, and thread patterns with a varying of degree displacement that aid in dispersive mixing of the material through which routine experimentation would have allowed for the creating of thread patterns that read within the range of 10-170 degrees (See Abstract, Col 9 Lines 1-50, Col 15 and 16 Lines 1-67).

At the time of the invention it would have been obvious to one with ordinary skill in the art to modify the teachings Kim 870 with Rauwendaal 246, since Rauwendaal 246's primary teaching aids in the enhancement of the dispersing means of the screw extruder, allowing for more effective and optimal processing conditions.

However the hypothetical device resulted from the combined teachings of Kim 870 and Rauwendaal 246 fails to surface texturing provided on at least a part of said second lead surface facing forward.

In an extrusion device pertaining to an improvement in screw extruders, Street 535 teaches a screw extruder in Figure 1 where there is a surface texturing provided on at least a part of said second lead surface facing forward toward the output of the extruder outlet (Figure 1).

At the time of the invention it would have been obvious to one with ordinary skill in the art to modify the hypothetical device of Kim 870 and Rauwendaal 246

with that of Street 535 because as taught by Street 535 the improved surface texturing results in aiding a process of separation and recombining along with intensive treatment for rapidly processing the material and allowing for more optimal conditions to be achieved (See Col 4 Lines 30-62).

Conclusion

4) Applicant's arguments filed 11/10/05 have been fully considered but they are not persuasive. Applicant's have failed to structurally show more clearly surface texture facing forward that is not on the edge portion of the screw thread. As well provide why it would not be obvious to modify Kim 870 with that of Maillefer 196 to take advantage of putting through hole portions in the thread portion of screw to enable proper mixing without overheating of the material when mixed by the extruder.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is

filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to G. Nagesh Rao whose telephone number is (571) 272-2946. The examiner can normally be reached on 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GNR



ROBERT DAVIS
PRIMARY EXAMINER
GROUP 1300 1700

12/9/05